

**Dr Denis Thomas Richard**  
**NASA Ames Research Center**  
**San José State University Research Foundation**

**Education**

Received a **Ph.D. in Astrophysics** with the highest honors from the University of Paris Diderot, for the work conducted at the Observatory of Paris on the topic of disk flow and turbulence.

**Current Position**

Space Scientist at NASA Ames Research Center.  
and the San José State University Research Foundation,

**Responsibilities**

**Co-Investigator** of the NASA Astrobiology Institute, in the NASA Ames team, focusing on modeling of gas flow, chemistry and scattering in the proto-planetary nebulae.

**Instrument Co-Investigator** on the LADEE mission, UVS instrument, working on laboratory science investigations of the UV-Visible spectrometer.

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**EDUCATION** — Université Paris Diderot, Paris, France

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Degree	U.S. Equivalent	Discipline	Year
Doctorat	Ph.D.	Astrophysics and Space Science	2001
Diplôme d'Etudes Avancées	M.Sc.	Astrophysics and Space Science	1997
Maîtrise		Fundamental Physics	1996
License	B.Sc.	Physics	1995
Diplôme d'Etudes Universitaires Générales		Physical Sciences	1994

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**EMPLOYMENT HISTORY**

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Space Scientist	SJSU Research Foundation, at NASA Ames	04/2005 – Present
Science Consultant	NASA ESMD Dust Management Program	11/2006 – 11/2008
Postdoctoral Associate	National Research Council Fellow, at NASA Ames	01/2002 – 03/2005
PhD Associate	Observatoire de Paris, France	10/1998 – 12/2001
Lecturer	Université de Versailles, France	10/1998 – 06/2001
Professor Assistant	CERCA, Université de Montréal, Canada	01/1997 – 08/1997

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**SCHOLARSHIPS AND AWARDS**

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National Academy of Sciences - National Research Council Fellowship	2002 – 2005
Doctorate Scholarship, Ministère de l'Education Supérieure et de la Recherche	1998 – 2001
D.E.A Scholarship, Ministère de l'Education Supérieure et de la Recherche	1996 – 1997

## **Communications**

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### Peer-Reviewed

Stubbs, T. J., Glenar, D., Colaprete, A. & **Richard, D. T.**, 2010, "Optical scattering processes observed at the Moon: Predictions for the LADEE Ultraviolet Spectrometer," *Planet. Space Sci.* **58-5**, p.830-837

**Richard, D. T.** & Davis, S. S., 2008, "Lunar dust characterization by polarimetric signature. I. Negative polarization branch of sphere aggregates of various porosities.", *Astronomy & Astrophysics*, v.483, p. 643-649

Dubrulle, B.; Dauchot, O.; Daviaud, F.; Longaretti, P.Y.; **Richard, D. T.**; Zahn, J.-P., 2005, "Stability and turbulent transport in Taylor-Couette flow from analysis of experimental data", *Physics of Fluids*, v.17-9, p.5103-5119.

Dubrulle, B., Marié, L., Normand, Ch., **Richard, D. T.**, Zahn, J. P., 2005, "An hydrodynamic shear instability in stratified disks", *Astronomy and Astrophysics*, v.429, p.1-13

**Richard, D. T.** & Davis, S. 2004, "A note on transition, turbulent length scales and transport in differentially rotating flows", *Astronomy and Astrophysics*, v.416, p.825-827

**Richard, D. T.** 2003, "On non-linear hydrodynamic instability and enhanced transport in differentially rotating flows", *Astronomy and Astrophysics*, v.408, p.409-414

**Richard, D. T.** 2001, "Instabilités Hydrodynamiques dans les Ecoulements en Rotation Différentielle", Thèse de Doctorat, Université Paris 7 Denis Diderot.

Hure, J.-M., **Richard, D. T.** & Zahn, J.P. 2001, "Accretion discs models with the  $\beta$ -viscosity prescription derived from laboratory experiments", *Astronomy and Astrophysics*, v.367, p.1087-1094

**Richard, D. T.** & Zahn, J. P. 1999, "Turbulence in differentially rotating flows. What can be learned from the Couette-Taylor experiment", *Astronomy and Astrophysics*, v.347, p.734-738

### Recent Conferences

**Richard D. T.**, Glenar D. A., Davis S. S., Stubbs T. J., Colaprete A., "Modeling of light scattering by non-spherical lunar dust grains", *Lunar Dust, Plasma and Atmosphere: The Next Steps*, Boulder, Colorado, January 27-29 2010.

Marshall J. R., **Richard D. T.**, Davis S., Colaprete A., "Dust-lofting mechanisms on the Moon", *Lunar Dust, Plasma and Atmosphere: The Next Steps*, Boulder, Colorado, January 27-29 2010.

Richard D. T., Glenar D. A., Stubbs T. J., Davis S. S., Colaprete A., "Light Scattering in the Lunar Orbital Environment by Non-Spherical Dust Grains", *41st Lunar and Planetary Science Conference*, (Lunar and Planetary Science XXXXI), The Woodlands, Texas. LPI Contribution No.2704, March 1-5, 2009.

**Richard, D. T.**, Glenar, D. A., Stubbs, T. J., Davis, S. S., Colaprete, A., "But still, like dust, I'll rise! Modeling the Scattering Signature of Lunar Dust for the Lunar Atmosphere and Dust Environment Explorer", NASA Lunar Science Institute Forum, NASA Ames Research Center, July 2009.

Glenar, D. A., Stubbs, T. J., Colaprete, A., **Richard, D. T.**, Delory, G. T., "Optical Scattering Processes Observed at the Moon: Predictions for the LADEE Ultraviolet/Visible Spectrometer", *NASA Lunar Science Institute Forum*, NASA Ames Research Center, July 2009.

Stubbs, T. J., Glenar, D. A., **Richard, D. T.**, Colaprete, A., "Predictions for the optical scattering at the Moon, as observed by the LADEE UV/VIS spectrometer", *40th Lunar and Planetary Science Conference*, (Lunar and Planetary Science XXXX), held March 23-27, 2009 in The Woodlands, Texas. LPI Contribution No. 2348.

Davis, S., Marshall, J., **Richard, D. T.**, Laub, J., "Lofting of Triboelectrostatically Charged Particles From the Lunar Surface", *American Geophysical Union, Fall Meeting 2008*, #P31B-1412.

**Richard, D. T.**, "Beyond Space Law: The Cultural Aspects of Lunar Colonization ", *Joint Annual Meeting of LEAG-ICEUM-SRR*, October 28-31 2008, #4008.

**Richard, D. T.** & Davis, S., "Polarimetric Signature of the Lunar Dust Exploration Environment", *1<sup>st</sup> NLSI Lunar Science Conference*, July 20-23 2008, #2003.

Davis, S., Marshall, J., **Richard, D. T.** & Laub, J. "Experiments on Charged Particle Levitation using a Debye Sheath Analog", *1<sup>st</sup> NLSI Lunar Science Conference*, July 20-23 2008, #2144.

**Richard, D. T.** & Davis, S., "Polarimetric Signature Of Dust and Aggregates Of Silicate", *5<sup>th</sup> Astrobiology Science Conference*, April 14 - 17, 2008, 31-05-P.

**Richard, D. T.** & Davis, S., "Characterization of the Lunar Dust Exploration Environment by Polarimetric Signature: Negative Polarization Branch of Aggregates of Various Porosity ", *39th Lunar and Planetary Science Conference*, (Lunar and Planetary Science XXXIX), held March 10-14, 2008 in League City, Texas. LPI Contribution No. 1391., p.1468.